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EXAMINER
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ALEJANDRO, RAYMOND

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



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**MAILED**  
FEB 06 2006  
**GROUP 1700**

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/047,407  
Filing Date: January 10, 2002  
Appellant(s): ZHANG, JI-GUANG

Baker Donelson Bearman Caldwell & Berkowitz  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 01/05/06 appealing from the Office action mailed 09/15/05.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

The following is a listing of the evidence (e.g. patents, publications, Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal.

### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5, 7-11 and 13-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Xing et al 6284406.

The instant claims are directed to a method of sealing a battery cell wherein the disclosed inventive concept comprises the specific sealing steps. Other limitations include the particular laminate layers; the heat sealing; the sealing of the battery surface. In addition, the product formed thereby is also claimed.

With reference to claims 1, 4-5, 7, 10-11, 13 and 15:

Xing et al disclose a battery embodiment wherein a battery 20 is contained within a package 34 formed of a flexible laminate material 36 (COL 3, lines 28-40). In reference to the outer package 34, it is disclosed that package 34 encases cell 32, 32' or 32'' is formed from a sheet of flexible laminate material 36. Broadly stated, the flexible laminate material is preferably multilayered and includes at least one layer of a metal foil and at least one layer of a thermoplastic (COL 4, lines 27-35). Xing et al further disclose that the metal foil layer is provided as a barrier to form a hermetic seal around cell 32. The thermoplastic adhesive and

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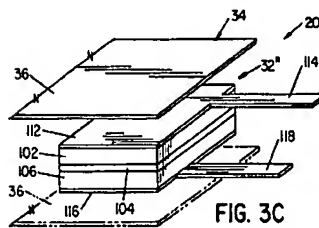
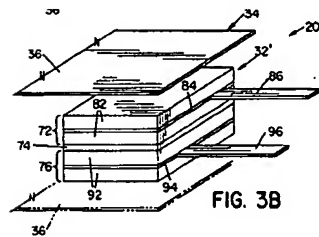
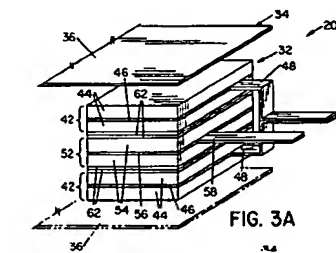
sealant is provided as an adhesive layer, which when heated, may bond onto itself or onto the metallic layer such that a hermetic seal is formed around cell 32 (COL 4, lines 35-40). It is further disclosed that heat and pressure are applied to the extending peripheral edges to cause the polymeric material and sealant material to soften and bond itself together to form a generally flange about the periphery of cell 32 (COL 4, lines 60-64).

Xing et al disclose that in the embodiment shown, packaging 34 is formed by placing the flat electrolytic cell 32 onto one side of a sheet of the flexible laminate wherein the cell 32 is placed in contact with the adhesive and sealant layers of the laminate; wherein the other half of the flexible laminate sheet 36 is then folded over onto the battery 20; and since the polymeric adhesive and sealant layer is the inner layer of the flexible laminate (COL 4, lines 42-63); wherein heat and pressure are applied to the thereto to cause the polymeric adhesive and sealant material to soften and bond itself together (COL 4, lines 60-64). Thus, it is noted that Xing et al has disclosed that the battery cell 32 is placed in contact with the adhesive and sealant layer; being the adhesive and sealant layer the inner layer of the flexible laminate which is heated to cause the material therein to seal itself.

**Figures 3A-C** below illustrate the steps for sealing the battery according to the aforementioned aspects, in particular, the use of a package 34 that encases cell 32, 32' or 32'' wherein the package 34 is formed from a sheet of flexible laminate material 36 which is a multilayered arrangement of a metal foil and a thermoplastic material (COL 4, lines 27-40). It is noted that the layers are positioned over the top and bottom surfaces of the battery, that is the battery is placed between the top and bottom layers. Heat is applied to these layers and to the periphery of the cell for sealing the same. It is also noted that the top and bottom layers seals the

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majority of the battery top and bottom surfaces, respectively. It is further noted that the method of sealing the battery is inherent as the prior art's sealed battery required sealing steps for producing it as disclosed.



Examiner's note: As previously mentioned, prosecution of this application has been re-opened to address a different interpretation of the claimed language. In this particular respect, after a thorough review and examination of the specification as filed it has been determined that the specification does not particularly define the extent of the heat sealing step/technique, that is to say, it does not disclose what is specifically intended by the broad language "heat sealing" and its implication as to the sealing of the battery surfaces per se (i.e. partly?, entirely?, what specific parts?). Accordingly, absent further description or definition of what does the claimed "heat sealing" distinctively intends, the examiner states that the heat sealing step of Xing et al which

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includes having the cell enclosed in foil, and then applying heat to only the periphery portion of the foil overlaying itself to bond the foil about its periphery will certainly cause to have heat sealed the entire periphery (i.e. bottom surface, top surface and peripheral surface) of the battery of Xing et al. Stated another way, given that Xing et al's metal foil layer is provided as a barrier to form a hermetic seal around cell (← emphasis added) (See Xing et al at col 4, lines 33-35), such hermetic seal therearound encloses the entire periphery including the bottom surface, top surface and periphery surface of the electrochemical cell, and as a result, all those surfaces are also sealed. In this regard, it is further noted that applicant's specification does not provide sufficient description as to whether the heat sealing step itself is a "spot" heating sealing (that is, directly performed at the specific top surface and bottom surface) or a "broad or common" heating sealing step performed at any position, location, or point, and consequently, making the first and second layers of the packaging foils be sealed to the top and bottom surfaces of the battery cell, respectively. In other words, in its broadest reasonable interpretation of the disclosed heat sealing technique, it can be fairly asserted that Xing et al's step encompassing applying heat and pressure to the three extending peripheral edges to cause the polymeric adhesive and sealing material to soften and bond itself together to form a generally U-shaped flange about the periphery of cell 32 (See Xing et al at col 4, lines 60-64) still reads on the broadly claimed language of heat sealing the top surface and the bottom surface of the battery with the respective packaging foils because the claimed "sealing" for itself only encompasses to enclose or cover the top and bottom surfaces regardless of whether or not the heat was directly applied to both the top and bottom surfaces. Put differently, the claimed heat sealing step does not specifically require to directly heat seal the top surface and the bottom surfaces, it only requires the step of performing

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heat sealing to have the packaging foil layers sealed to the top and bottom surfaces of the battery cell.

With reference to claims 2, 8 and 14:

Xing et al teach that the flexible laminate material is preferably multilayered and includes at least one layer of a metal foil and at least one layer of a thermoplastic (COL 4, lines 27-35).

With reference to claims 3 and 9:

Xing et al further teach that the metal foil layer is provided as a barrier to form a hermetic seal around cell 32. The thermoplastic adhesive and sealant is provided as an adhesive layer, which when heated, may bond onto itself or onto the metallic layer such that a hermetic seal is formed around cell 32 (COL 4, lines 35-40). It is further disclosed that heat and pressure are applied to the extending peripheral edges to cause the polymeric material and sealant material to soften and bond itself together to form a generally flange about the periphery of cell 32 (COL 4, lines 60-64). Thus, heat and pressure are employed for sealing the battery.

Therefore, the applied prior art does anticipate the present claims.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.



***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6, 12 and 16 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Xing et al 6284406.

Xing et al disclose a battery embodiment wherein battery 20 which comprises an electrolytic cell 32 is contained within a package 34 formed of a flexible laminate material 36 (COL 3, lines 28-35). This package 34 encases cell 32, 32' or 32'' is formed from a sheet of flexible laminate material which is, preferably, multilayered (COL 4, lines 28-40). Heat and pressure are applied to seal the battery (COL 4, line 35-40/ COL 4, line 60-64). It is noted that Xing et al disclose a substantially identical structural product, that is, a sealed battery comprising substantially the same structural features of the claimed invention.

Examiner's note: It is noted that the instant claims are being construed as product-by-process claims and that the product itself does not depend on the process of making it. Accordingly, in a product-by-process claim, the patentability of a product does not depend on its method of production. In that, it is further noted that the product in the instant claims is the same as or obvious over the product of the prior art.

Therefore, Xing et al anticipate the claims. However, if the claims are not anticipated the claims are obvious as it has been held similar products claimed in product-by-process limitations are obvious (See MPEP 2113). In re Brown 173 USPQ 685 and In re Fessman 180 USPQ 324.

#### **(10) Response to Argument**

Appellant's arguments filed 01/05/06 have been fully considered but they are not persuasive.

The main contention of appellant's arguments is based on the assertion that "the specification clearly describes what is currently intended by the term heat seal" and that "it is clear that the meaning of heat sealing is the same of lamination wherein the majority of the surfaces are in sealing engagement with each other, not merely a peripheral edge". In this regards, appellant has gone to the distance of making reference to the entire specification. Thus, in response to appellant's argument that the references fail to show certain features of appellant's invention, it is noted that the features upon which appellant relies (i.e., "it is clear that the meaning of heat sealing is the same of lamination wherein the majority of the surfaces are in sealing engagement with each other, not merely a peripheral edge") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims (←emphasis added). See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Turning now to what appellant appears to be arguing is the definition of his term "heat seal", in particular, "the meaning of heat sealing is the same of lamination wherein the majority of the surfaces are in sealing engagement with each other, not merely a peripheral edge", the examiner likes to remind appellant that as recited in the specification as filed on page 8, lines 1-8, "It should be understood that while the present invention strives to laminate the exterior surface of the battery cell completely with the packaging material, the invention is not limited to

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such". Thus, appellant has positively stipulated that although his invention encompasses laminating the exterior surface of the battery cell completely with the packaging material, his invention is not self-limited to that practice or embodiment. Consequently, other heat sealing embodiments or practices are expected and accepted and well within the scope or spirit of appellant's invention. Hence, the defined heat seal is not intended to be applied in each and every possible embodiment or 100 % of the time. This statement itself clearly separates from the position taken by the appellant about the clear meaning of heat sealing. While the examiner recognizes that this statement is a general disclaimer mostly provided in all patent applications, it (the statement) carries a connotation on what is ultimately and specifically intended. For the most part, giving some latitude to the claimed invention and disclosed specification without narrowing the scope of the disclosed invention. And appellant made his choice of providing this statement.

With respect to appellant's arguments specifically characterizing/defining the term heat seal of Xing et al (i.e. a) "the heat seal only applies to the bond or seal created between the top and bottom layers along their periphery", and b) "the term does not apply to areas that are not bonded together through the heating process"), it is interesting to see how appellant argues and contends that his definition of the term heat seal is so specific or narrowed but at the same time appellant conveniently argues and contends that Xing et al's definition of the term heat seal is so broad and unspecific and irrelevant to the claimed methods of sealing. In a very respectful manner, the examiner asserts that this is a double standard. It is respectfully stated that heat seal is heat seal everywhere, that is to say, heat seal means heat seal universally and in all places. This last point is and will be the examiner's line of reasoning for maintaining the applied

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rejection presented supra and for substantiating the examiner's position on how things/inventions/features can be construed or interpreted differently in the absence of specific limiting language in the present claims. This is exactly the reason why prosecution was re-opened, so as to show how the definition of a given term (i.e. heat seal) can be conveniently or accidentally construed in the absence of impartial or objective claim language. Simply put, ambiguity arises in the absence of undefined terminology as in the presently claimed invention. The appellant has stated his position clearly and so the examiner, and as such, the examiner now rests his case.

Yet further, in this particular respect, after a thorough review and examination of the specification as filed it has been determined that the specification does not particularly define the extent of the heat sealing step/technique, that is to say, it does not disclose what is specifically intended by the broad language "heat sealing" and its implication as to the sealing of the battery surfaces per se (i.e. partly?, entirely?, what specific parts?). Accordingly, absent further description or definition of what does the claimed "heat sealing" distinctively intends, the examiner states that the heat sealing step of Xing et al which includes having the cell enclosed in foil, and then applying heat to only the periphery portion of the foil overlaying itself to bond the foil about its periphery will certainly cause to have heat sealed the entire periphery (i.e. bottom surface, top surface and peripheral surface) of the battery of Xing et al. Stated another way, given that Xing et al's metal foil layer is provided as a barrier to form a hermetic seal around cell (← emphasis added) (See Xing et al at col 4, lines 33-35), such hermetic seal therearound encloses the entire periphery including the bottom surface, top surface and periphery surface of the electrochemical cell, and as a result, all those surfaces are also sealed. In this regard, it is

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further noted that appellant's specification does not provide sufficient description as to whether the heat sealing step itself is a "spot" heating sealing (that is, directly performed at the specific top surface and bottom surface) or a "broad or common" heating sealing step performed at any position, location, or point, and consequently, making the first and second layers of the packaging foils be sealed to the top and bottom surfaces of the battery cell, respectively. In other words, in its broadest reasonable interpretation of the disclosed heat sealing technique, it can be fairly asserted that Xing et al's step encompassing applying heat and pressure to the three extending peripheral edges to cause the polymeric adhesive and sealing material to soften and bond itself together to form a generally U-shaped flange about the periphery of cell 32 (See Xing et al at col 4, lines 60-64) still reads on the broadly claimed language of heat sealing the top surface and the bottom surface of the battery with the respective packaging foils because the claimed "sealing" for itself only encompasses to enclose or cover the top and bottom surfaces regardless of whether or not the heat was directly applied to both the top and bottom surfaces. Put differently, the claimed heat sealing step does not specifically require to directly heat seal the top surface and the bottom surfaces, it only requires the step of performing heat sealing to have the packaging foil layers sealed to the top and bottom surfaces of the battery cell.

Appellant's contention has also been grounded on the assertion that the prior art does not disclose "that the foil is actually heat sealed to the battery" or "heat sealing the first layer of packaging foil to the top surface of the battery cell or heat sealing the second layer of packaging foil to the bottom surface of the battery cell". However, this assertion is respectfully disagreed with because the prior art teaches the following: in the embodiment shown, packaging 34 is formed by placing the flat electrolytic cell 32 onto one side of a sheet of the flexible laminate

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wherein the cell 32 is placed in contact with the adhesive and sealant layers of the laminate; wherein the other half of the flexible laminate sheet 36 is then folded over onto the battery 20; and the polymeric adhesive and sealant layer is the inner layer of the flexible laminate (COL 4, lines 42-63) wherein heat and pressure are applied to the thereto to cause the polymeric adhesive and sealant material to soften and bond itself together (COL 4, lines 60-64). Thus, it is contended that the prior art has disclosed that the battery cell 32 is placed in contact with the adhesive and sealant layer being the adhesive and sealant layer the inner layer of the flexible laminate which is heated to cause the material therein to seal itself. Accordingly, even though the prior art does not explicitly disclose the particular sealing step as specifically drafted in claim 1, it is contended that the sealing approach used by the prior art implicitly instructs the skilled artisan that the cell is, indeed, in direct contact with the adhesive and sealant layer of the laminate which are the inner layer of the flexible laminate which are heated to cause the adhesive and sealant material to soften and bond itself together, thereby the surface of the battery contacted with the adhesive and sealant layer of the laminate is also exposed to the heat, and therefore, said surface of the battery must become heat sealed. Consequently, given that the prior art of record has expressly disclosed that the battery is positioned in contact with the adhesive and sealant layer of the laminate which is heated sealed, the battery per se is, therefore, necessarily and directly heat sealed to the laminate structure. Unless appellant provides objective evidence demonstrating that the battery of the prior art does not contact at all any portion of the adhesive and sealant layer of the laminate subject to heat sealing, it is believed the prior art imparts a satisfactory heat sealing step fulfilling the claimed requirement.

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Appellant has also argued that "heat is applied to only the peripheral portion of the foil overlaying itself to bond the foil about its periphery, see specification Col. 4, lines 54 through Col. 5, line 3" (see the amendment of 04/29/04, "Remark" section last sentence bridging pages 2-3), nonetheless nowhere throughout Col 4, line 54-Col 5, line 3 of the applied reference the examiner can find the specific conditional language reciting "only" and stating that heat is applied to only the peripheral portion thereof. Thus, this argument is considered to be unsupported as the reference itself does not appear to be leading into that teaching.

In response to appellant's argument that "the heat sealing process would destroy a typical battery cell", the fact that appellant has recognized another advantage/disadvantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

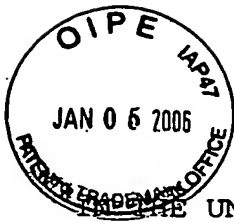
Raymond Alejandro  
Primary Examiner  
Art Unit 1745

  
**RAYMOND ALEJANDRO**  
**PRIMARY EXAMINER**

Conferees:

Pat Ryan 

Steve Griffin 



THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of )  
Zang, Ji-Guang ) Group Art Unit: 1745  
Serial No. 10/047,407 ) Examiner: Alejandro, Raymond  
Filed: January 10, 2002 )  
For: PACKAGED THIN FILM )  
BATTERIES AND METHOD OF )  
PACKAGING THIN FILM )  
BATTERIES )

APPEAL BRIEF





IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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APPEAL BRIEF

I. INTRODUCTION

This is an appeal from the decision mailed September 15, 2005 of the Patent Examiner, Group Art Unit 1745, finally rejecting claims 1-16.

II. REAL PARTY IN INTEREST

The Applicant is the real party in interest.

III. RELATED APPEALS AND INTERFERENCES

None.

IV. STATUS OF THE CLAIMS

Claims 1-16 stand rejected by the final action mailed September 15, 2005. Claims 1-16 are pending. Applicant hereby appeals the final rejection of claims 1-16. Applicant hereby cancels claims 17-20.

#### V. STATUS OF AMENDMENTS

None.

#### VI. SUMMARY OF CLAIMED SUBJECT MATTER

Applicant's claim 1 claims a method of sealing a battery cell (Fig. 3, reference 11) having a top surface, a bottom surface and peripheral edges. The method comprises the steps of (a) positioning a first layer of packaging foil over the top surface of the battery cell (page 5, lines 13-17, Fig. 3 ref. 21), (b) positioning a second layer of packaging foil over the bottom surface of the battery cell (page 5, lines 13-17, Fig. 3 ref. 22), and (c) heat sealing the first layer of packaging foil to the top surface of the battery cell, heat sealing the second layer of packaging foil to the bottom surface of the battery cell, and heat sealing the first layer of packaging foil to the second layer of packaging foil about the periphery of the battery cell, and a product resulting from the process (page 6, lines 4-8, Fig. 2, page 6, lines 15-23).

Applicant's claim 7 claims a method of sealing a battery cell having a top surface, a bottom surface and peripheral edges, the method comprises the steps of (a) providing a first layer of packaging foil (page 5, lines 13-17, Fig. 3 ref. 21); (b) providing a second layer of packaging foil (page 5, lines 13-17, Fig. 3 ref. 21); (c) positioning a battery cell between the first and second layers of packaging foil (page 5, lines 13-17, Fig. 3 ref. 21); (d) heating the first and second layer of packaging foil (page 6, lines 4-8, Fig. 2, page 6, lines 15-23); and (e) pressing the first layer against the top surface of the battery cell and pressing the second layer against the bottom surface of the battery cell (page 6, lines 4-8, Fig. 2, page 6, lines 15-23). With this construction, the heating and pressing of the first and second layers against the battery cell causes the first and second layers to be sealed to the battery cell.

Applicant's claim 13 claims a method of sealing a battery cell having an exterior top surface, an exterior bottom surface and exterior peripheral edges, the method comprises the steps of: (a) providing two sheets of overlaying packaging foils (page 5, lines 13-17, Fig. 3 ref. 21); (b) positioning a battery cell between the two sheets of packaging foil (page 5, lines 13-17, Fig. 3 ref. 21); and (c) heat sealing the packaging foil to the exterior surface of the battery cell (page 6, lines 4-8, Fig. 2, page 6, lines 15-23).

#### VII. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-5, 7-11 and 13-15 stand rejected under 35 U.S.C. §102 as being anticipated by Xing et al. Claims 6, 12 and 16 stand rejected under 35 U.S.C. §103 as being obvious over Xing et al.

#### VIII. ARGUMENT

##### (A) Claims 1-5, 7-11 and 13-15

###### (1) Claim 1

Applicant's invention of claim 1 defines a method of sealing a battery cell having a top surface, a bottom surface and peripheral edges. The method comprises the steps of (a) positioning a first layer of packaging foil over the top surface of the battery cell, (b) positioning a second layer of packaging foil over the bottom surface of the battery cell, and (c) heat sealing the first layer of packaging foil to the top surface of the battery cell, heat sealing the second layer of packaging foil to the bottom surface of the battery cell, and heat sealing the first layer of packaging foil to the second layer of packaging foil about the periphery of the battery cell.

In essence, the examiner contends that Applicant's use of the term heat sealed is not disclosed in the specifications and that the term may be used to encompass the teachings of Xing et al. (US Patent No. 6,284,406). Applicant respectfully disagrees

with the examiner on both points.

Firstly, the term heat sealed is made readily apparent from the teachings recited in the specifications. ~~Commencing on Page 2, line 15, the Applicant recites that the prior art utilized bags with an open top that were later "heat sealed".~~ From this it is shown that "heat sealed" means that the peripheral edge was sealed in a manner wherein one layer is sealed or bonded to another layer. The Applicant also describes the heat sealing process on Page 6, line 4 through Page 7, line 4, wherein Applicant specifically recites that:

"The battery cell 11, two layers of packaging foil 21 and 22, and two layers of carrier material 24 and 25 are then passed through a laminator having a pair of heaters 28 and a pair of pressure applying means in the form of lamination rollers 29. ..The temperature, pressure and rate of travel through the laminator causes the interior surface of the packaging foils 21 and 22 to be heat sealed to the corresponding surface of the battery cell 11 facing the packaging foils. As such, the interior surface of the bottom layer of packaging foil 21 is heat sealed to the bottom surface of the substrate 13 and the interior surface of the top layer of packaging foil 22 is heat sealed to the top surface of passivation layer 19, as shown in Fig. 2. Although within the scope of the present invention many different combinations of temperature, pressure and material travel speeds through the laminator may be discovered which heat seals the packaging layers to the battery cell. However, it has been discovered that a temperature of 155 degrees Celsius, a pressure of 5 p.s.i. and a

travel speed of 25 cm/min for a Class PPD packaging material produces a proper heat seal between the packaging foils and the battery cell."

Applicant also points out the specification specifically points out the benefit of heat sealing on Page 7, lines 4-27, which inherently point out what is not intended to be meant by heat sealing through examples of the prior art. The specification therein recite the following:

"It has been discovered that by heat sealing the packaging foils directly to the battery cell the battery cell is provided with a substantially improved protective layer thereby improving the overall packaged battery. This improvement is achieved in part by the lamination process wherein as the packaging foils are heat sealed to the battery cell and as such occurs the gases between the foils and the battery cell are driven out. The use of packaging materials with the prior art batteries produced spaces between the battery cell and the packaging material, thereby allowing the capture of gases within these spaces which could degrade the components of the battery cell. The process of laminating the packaging material directly to the battery cell also creates a smaller overall battery..."

The Applicant's specification further recite on Page 8, lines 1-8,

"It should be understood that while the present invention strives to laminate the exterior surface of the battery cell completely with the

packaging material, the invention is not limited to such. However, it is desirous to laminate at least a majority of the top surface of the battery cell, the active material surface, so as to be in sealing engagement with the packaging foil."

As such, it is clear that the meaning of heat sealing is the same of lamination, wherein the majority of the surfaces are in sealing engagement with each other, not merely a peripheral edge as suggested by the examiner.

The examiner also submits that Applicant's term does not describe whether this is a "spot" heat seal or not. Applicant respectfully submits that the specifications description of sealing a majority of the surface clearly indicates that this is not a spot weld but that it encompasses a broad surface of bonding engagement between layers.

Lastly, the examiner contends that the Applicant's heat sealing step does not specifically require it to be directly heat sealed to the top surface and the bottom surface. This contention is incorrect as Applicant's claim 1 clearly states that "(c) heat sealing the first layer of packaging foil to the top surface of the battery cell, heat sealing the second layer of packaging foil to the bottom surface of the battery cell". Applicant's claim 1 also distinguishes this heat sealing from the peripheral edge heat sealing by reciting that in addition to the first two heat sealing steps a third heat sealing step is required wherein "heat sealing the first layer of packaging foil to the second layer of packaging foil about the periphery of the battery cell." It is only this last step that is shown by the cited reference of Xing et al.

Next with regard to the use of the term in connection with the Xing et al. reference, Applicant submits that the term heat seal is disclosed in Xing et al. However, the heat seal only applies to the bond or seal created between the top and bottom

layers along their periphery. Furthermore, as clearly illustrated by Applicant in describing the prior art and as clearly shown by Xing et al. the term does not apply to areas that are not bonded together through the heating process. It should be noted that simply placing an item "in contact" with another and applying heat to a different area does not constitute heat sealing, as suggested by the examiner.

If the examiner's contentions regarding heat sealing are upheld, it is respectfully submitted that such still does not show the three different heat seals recited in claim 1, as Xing et al. only discloses the third heat seal about the periphery.

As the present rejection stems from a recitation of the previous rejection, Applicant addresses the previous rejection herein.

Then, the examiner appears to be rejecting the Applicant's claimed invention based on the contention that Xing et al. discloses that the foil layer is heat sealed to the battery. The examiner states that the foil "when heated, may bond onto itself or onto the metallic layer such that a hermetic seal is formed around cell 32 (COL 4, lines 35-40)." However, this statement and the reference in the specification does not disclose that the foil is actually heat sealed to the battery, as clearly disclosed and claimed in Applicant's claim 1. The cell in the Xing et al. patent is encased in foil and then heat is applied to only the periphery portion of the foil overlaying itself to bond the foil about its periphery, see specification Col. 4, line 54 through Col. 5, line 3. This portion of the Xing et al. patent specifically states that "the polymeric adhesive and sealant layer is the inner layer of the flexible laminate, it contacts itself along the three peripheral edges where the flexible laminate extends beyond cell 32..." (Col 4, lines 54-57) and that "Heat and pressure are applied to the three extending peripheral edges to cause the polymeric adhesive and sealant material to soften and bond itself together to form a generally

U-shaped flange 38 about the periphery of cell 32...thus forms a seal about the periphery of the battery.." Applicant respectfully submits that sealing the peripheral edge is clearly not heat sealing the first layer of packaging foil to the top surface of the battery cell or heat sealing the second layer of packaging foil to the bottom surface of the battery cell as specifically claimed by Applicant.

The examiner has contended that the cited reference does not contain any specific conditional language reciting that the heat is applied "only" to the peripheral edges. Applicant respectfully submits that more importantly the cited reference does not state that heat is applied to any other area besides the peripheral edge, and therefore the position taken by the examiner is not supported by the reference and is simply conjecture on the part of the examiner. Furthermore, the specification does state that the heat is applied "around" the cell, see Col. 4, Lines 34, 39 and along the "periphery" see Col. 4, Lines 56, 61, and 63 and Col. 5, Line 1.

It should be noted that it has been commonly understood that the heat sealing process would destroy a typical battery cell.

In Xing et al. the "bag" encapsulates the battery cell by sealing the bag about the periphery of the battery cell. However, careful attention is paid not to heat the active portions of the battery cell, i.e., the bag is not heat sealed to the top and bottom portions of the battery cell as claimed by Applicant. As such, the method and the end product shown in Xing et al. are different from the method and end product made according to Applicant's method. The examiner is respectfully reminded that the method described in Xing et al. was specifically identified and described by Applicant in its BACKGROUND OF THE INVENTION and therein distinguished from this method, see Applicant's specification page 2, lines 7-22. It was in view of this type of prior art sealing process that the Applicant devised its improved method and product.



(2) Claim 7

The just described argument applies equally to claim 7 as they also include the general limitation that the foils are heat sealed directly to the battery itself rather than around the battery to form a bag.

(2) Claim 13

The just described argument applies equally to claim 13 as they also include the general limitation that the foils are heat sealed directly to the battery itself rather than around the battery to form a bag.

(B) Claims 6, 12 and 16

With regard to claims 6, 12 and 16, it is well settled that the obviousness of an invention cannot be established by combining the teaching of the prior art absent some teaching, suggestion or incentive supporting the combination, see *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *Ashland Oil, inc. v. Delta Resins and Refractories, Inc.*, 776 F.2d 281, 227 USPQ 657 (Fed. Cir. 1985); *ACSHospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 221 USPQ 929 (Fed. Cir. 1984); *Pentec, Inc. v Graphic Controls Corp.*, 776 F.2d 309, 227 USPQ 766 (Fed. Cir. 1985). Moreover, the mere fact that the prior art could be modified in the manner suggested by the examiner does not make such a modification obvious unless the prior art fairly suggests the desirability of the modification, see *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). Here, the references do not suggest any motivation for, or the desirability of, Applicant's unique method of producing a packaging directly upon a battery cell. As such, it is improper to utilize these references to establish obviousness.

It is acknowledged that the tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process.

However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art. MPEP 2142. This is "especially important in the case of less technologically complex inventions, where the very ease with which the invention can be understood may prompt one 'to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." *In re Dembiczak*, 175 F.3d994, 50 USPQ2d 1614, 1617 (Fed. Cit 1999) citing *WL. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983). With this in mind, a hindsight-based obviousness analysis must be supported by evidence which is "clear and particular". *In re Denbjczac*. It is insufficient to simply offer a broad range of sources or to make conclusory statements, as "[broad conclusory statements regarding the teaching of multiple references, standing alone, are not 'evidence". *Id.*

Applicant respectfully submits that the examiner has claimed the present invention to be obvious utilizing hindsight, speculation and conclusory statements which are not, in fact, supported by the cited references, to come up with a combination that would either destroy the clear intention of the reference or modify such in a manner that goes against the clear teachings of the reference. Applicant respectfully submits that the examiner's contention that heat is applied to the battery cell or that the reference does not recite that heat is applied "only" to the periphery is just such a conclusory statement which is unsupported by the reference. Furthermore, it is submitted that it is only through such hindsight that the Applicant's invention can be gleaned from the cited references. Applicant respectfully contends that the invention is not obvious, but instead is novel and therefore worthy of patent protection.

Applicant hereby submits that as this method is different and as it produces different structures. As such, Applicant's method and products produced thereby are neither anticipated nor

made obvious by this reference and therefore should be allowed.

The requisite fee due upon filing of this brief is attached. Any additional fee is to be charged to Baker Donelson Bearman Caldwell & Berkowitz, PC, Deposit Account No. 11-0553.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to:  
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Signature



CLAIMS APPENDIX

1. A method of sealing a battery cell having a top surface, a bottom surface and peripheral edges, the method comprising the steps of:

(a) positioning a first layers of packaging foil over the top surface of the battery cell;

(b) positioning a second layer of packaging foil over the bottom surface of the battery cell; and

(c) heat sealing the first layer of packaging foil to the top surface of the battery cell, heat sealing the second layer of packaging foil to the bottom surface of the battery cell, and heat sealing the first layer of packaging foil to the second layer of packaging foil about the periphery of the battery cell.

2. The method of claim 1 wherein said first layer and said second layer of packaging foil are multi-layered laminates which includes at least one metallic layer and at least one polymer layer.

3. The method of claim 1 wherein step (c) the heat sealing is conducted in part by two oppositely disposed pressure applying means between which the top layer, battery cell and bottom layer are passed.

4. The method of claim 1 wherein step (c) the first layer is sealed to a majority of the top surface of the battery cell.

5. The method of claim 4 wherein step (c) the second layer is sealed to a majority of the bottom surface of the battery cell.

6. The product formed by the method of claim 1.

7. A method of sealing a battery cell having a top surface, a bottom surface and peripheral edges, the method comprising the steps of:

- (a) providing a first layer of packaging foil;
- (b) providing a second layer of packaging foil;
- (c) positioning a battery cell between the first and second layers of packaging foil;
- (d) heating the first and second layer of packaging foil;

and

- (e) pressing the first layer against the top surface of the battery cell and pressing the second layer against the bottom surface of the battery cell,

whereby the heating and pressing of the first and second layers against the battery cell causes the first and second layers to be sealed to the battery cell.

8. The method of claim 7 wherein said first layer and said second layer of packaging foil are multi-layered laminates which includes at least one metallic layer and at least one polymer layer.

9. The method of claim 7 wherein step (e) the pressing of the packaging foils against the battery cell is conducted by two oppositely disposed pressure applying means between which the top layer, battery cell and bottom layer are passed.

10. The method of claim 7 wherein step (e) the first layer is sealed to a majority of the top surface of the battery cell.

11. The method of claim 10 wherein step (c) the second layer is sealed to a majority of the bottom surface of the battery cell.

12. The product formed by the method of claim 7.

13. A method of sealing a battery cell having an exterior top surface, an exterior bottom surface and exterior peripheral edges, the method comprising the steps of:

- (a) providing two sheets of overlaying packaging foils;
- (b) positioning a battery cell between the two sheets of packaging foil;
- (c) heat sealing the packaging foil to the exterior surface of the battery cell.

14. The method of claim 13 wherein the packaging foil is comprised of multi-layered laminates which includes at least one metallic layer and at least one polymer layer.

15. The method of claim 14 wherein step (c) the packaging foil is sealed to a majority of the exterior surface of the battery cell.

16. The product formed by the method of claim 13.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None